



The advertisement call of *Dendropsophus pseudomeridianus* (Cruz, Caramaschi & Dias) (Anura: Hylidae)

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The advertisement call plays a fundamental role in anuran reproduction (Duellman & Trueb 1994; Wells 2007). Some species that may be confused morphologically with each other can be distinguished by vocalization (Pombal *et al.* 1995). It is the case of *Dendropsophus pseudomeridianus*, which is phenotypically very similar to *D. berthallutzae* (Bokermann), *D. branneri* (Cochran), *D. decipiens* (Lutz), *D. haddadi* (Pombal & Bastos), *D. meridianus* (Lutz) and *D. oliveirai* (Bokermann). Herein, we present the first quantitative description of the advertisement call of *D. pseudomeridianus* and compare it with the advertisement call of morphologically similar species of the *D. microcephalus* group.

We analyzed 183 calls of three individuals from the Reserva Particular de Patrimônio Natural Campo Escoteiro Geraldo Hugo Nunes in the municipality of Guapimirim, State of Rio de Janeiro (22° 34' 37" S and 43° 01' 50" W, 23 m a.s.l.), at approximately 70 km from the type locality. The recordings were made at a sampling rate of 44.1 kHz and 24 bits using a Tascam DR-07 digital recorder and a Sennheiser ME67 microphone, at an air temperature of 25°C. The analyses were performed using the program Raven Pro 1.4 from The Cornell Lab of Ornithology (Bioacoustic Research Program 2011). Technical terms and definitions follow Littlejohn (2001). Numerical call parameters are given as range followed by mean (\bar{x}) \pm standard deviation (SD), mode (Mo) and number of samples (n). Voucher specimens are deposited at the Amphibian Collection of the Departamento de Zoologia, Universidade Federal do Rio de Janeiro (ZUF RJ) and recordings are deposited at the Arquivo Sonoro Elias Pacheco Coelho, Departamento de Zoologia, Universidade Federal do Rio de Janeiro (ASEC) under the numbers ZUF RJ 13936 (ASEC 17720–23), 13944 (ASEC 17713–19 and 17724), and 13963 (ASEC 17725). Acoustic data for *Dendropsophus berthallutzae*, *D. branneri*, *D. decipiens*, *D. haddadi*, *D. meridianus* and *D. oliveirai* were obtained from the literature (i.e., Pombal Jr & Bastos 1998; Abrunhosa *et al.* 2001; Nunes *et al.* 2007; Santana *et al.* 2011; Forti *et al.* 2012; Ruas *et al.* 2012).

Males of *Dendropsophus pseudomeridianus* were recorded calling in large ponds, mainly at the margins of the deeper parts with dense vegetation. The species *D. meridianus*, *Hypsiboas semilineatus* (Spix) and *Scinax similis* (Cochran) called from or nearby the same ponds. The most conspicuous of them was *S. similis*, recorded in the background (Fig. 1A, B). The advertisement call of *D. pseudomeridianus* is composed by a single note, normally multipulsed (Fig. 1A, C). The note duration varied between 0.008 to 0.014 s (\bar{x} = 0.011 \pm 0.012; Mo = 0.011; n = 183). The dominant frequency corresponded to the fundamental frequency and ranged from 3747 to 5513 Hz (\bar{x} = 4983 \pm 254.3; Mo = 4823; n = 183). The number of pulses per note varied from 1 to 7 (\bar{x} = 5.3 \pm 0.9; Mo = 5; n = 183). The repetition rate of pulses (number of pulses divided by note duration) ranged from 100 to 600 pulses per second (\bar{x} = 477 \pm 64.3; Mo = 455; n = 183). The call showed harmonic structure, although deterministic chaos (Wilden *et al.* 1998) between the harmonics made them less conspicuous (Fig. 1D). Often four harmonics were perceptible (Fig. 1D, E), but the second and/or fourth harmonic might be weaker or even not visible in the spectrograms. The repetition rate of the calls ranged from 0.94 to 1.65 calls per second (\bar{x} = 1.21 \pm 0.201; n = 13).

The advertisement call of *Dendropsophus pseudomeridianus* (Fig. 1F) presents several diagnostic characters when compared with the morphologically similar species of the *D. microcephalus* group. The numerical call parameters given in parenthesis are the range of *D. pseudomeridianus* followed by the combined range of the species compared. Note duration is shorter than that of the "note A" (Moura *et al.* 2012) of *D. berthallutzae* (0.008–0.014 vs. 23.0–46.8 s). Call

duration is shorter than that of *D. decipiens* (0.008–0.014 s vs. 0.67–1.60 s). Dominant frequency is lower than that of *D. branneri* and *D. oliveirai* (3747–5513 vs. 5685–6640 Hz). The call of *D. pseudomeridianus* promptly differs from those of *D. berthaltutzae* and *D. decipiens* by being always composed of an isolated single note (vs. sequence of two or more notes). The numerical parameters of the advertisement call of *D. pseudomeridianus* overlap with those of *D. haddadi*, but this latter may present two or three notes (only the population from “Reserva Ecológica de Michelin” may present only one note) while the former always presents a single one.

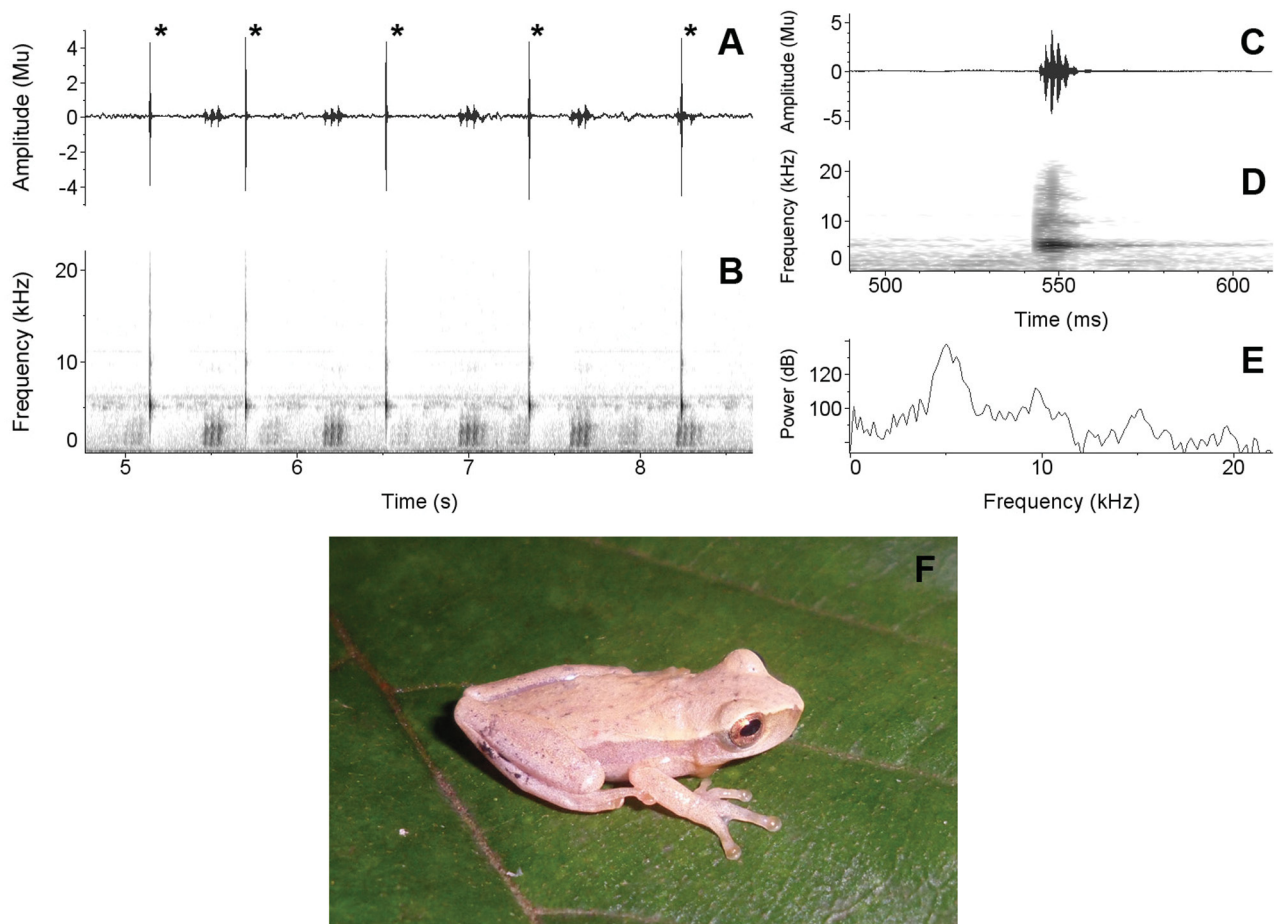


FIGURE 1. Advertisement call of *Dendropsophus pseudomeridianus* (ZUF RJ 13944; ASEC 17713). Spectrogram and power spectrum with window function Hann, amplitude logarithmic, window size 256 samples, overlap 99%. (A, B) Oscillogram and spectrogram of five calls (each marked with an asterisk); (C, D) oscillogram and spectrogram of one call; (E) power spectrum of one call with four harmonics; (F) male of *D. pseudomeridianus* (ZUF RJ 13931). The background calls in A and B belong to *Scinax similis* (see main text).

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